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1896

U. S. DEPARTMENT OF AGRICULTURE.

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REPORT

U. S. Department of Agriculture.

OF

# THE POMOLOGIST

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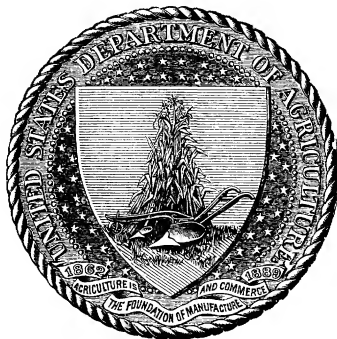
1896.

BY

S. B. HEIGES.

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[FROM THE REPORT OF THE SECRETARY OF AGRICULTURE.]



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## REPORT OF THE POMOLOGIST.

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U. S. DEPARTMENT OF AGRICULTURE,  
DIVISION OF POMOLOGY,  
*Washington, D. C., September 10, 1896.*

SIR: I have the honor to hereby transmit the report of the Division of Pomology for the fiscal year 1895-96.

Respectfully,

S. B. HEIGES,  
*Chief.*

Hon. J. STERLING MORTON,  
*Secretary.*

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### WORK OF THE YEAR.

The work of the division during the fiscal year proceeded along lines much the same as those noted in the report of last year, the divisional force being employed principally in the identification of varieties; the correction of nomenclature; the describing of valuable new varieties, and of specimens that show marked variations from their varietal types, resulting from different climatic conditions, etc.; the making of paintings in water colors of choice new varieties, showing form, size, and external appearance, together with sectional paintings showing core formation and color of flesh, seed, etc.; the modeling of specimens of the various species of choice fruits, so as to eventually have a comprehensive exhibit of the fruits of our entire country; and the cultivation and careful study of trees grafted by different methods during the past two years, planted in different localities and upon soils entirely unlike.

The receipts of specimens were more than 40 per cent larger than last year, and the number of promising new varieties brought to light during the summer and autumn of 1895 was surprisingly large, being greater than previously recorded since the formation of the division.

#### EXAMINATION AND IDENTIFICATION OF SPECIMENS.

By the examination of little known varieties a considerable number of synonyms were detected which were passing under names new to pomological literature. A large number of such alleged new varieties are found to consist of old sorts renamed. When such cases are discovered the grower or the disseminator is informed by letter, in order that the error may be corrected as quickly as possible. It is gratifying to report that in a majority of such cases the growers acquiesce in the decision and promptly adopt the correct nomenclature, even when it involves the loss of a prospective pecuniary profit on their part. It is believed that this constitutes one of the most useful functions of the division, for the correct nomenclature of fruit varieties in nurseries and orchards is one of the most important factors in progressive commercial fruit growing.

More than 750 descriptions of fruit varieties have been added to the files, and a large number of water-color paintings and models have been made. A collection of photographic negatives has been begun, which is expected to rapidly increase in size and usefulness in identifying varieties and for illustrating publications.

#### MISCELLANEOUS EXPERIMENTS.

More than 550 lots of scions, plants, and small trees have been placed with experimenters during the year, a large proportion of these having been donated by growers for this purpose, though nearly 150 lots were the product of importations made by the Department during the last two fiscal years, mainly citron, fig, and Chinese persimmon.

The experiment on methods of propagation of the apple in which the scions from Hungary were utilized, noted last year, has continued, and it is expected that a preliminary report upon it can be made soon after the close of the present growing season. In addition to this, 1,000 grafts of 10 well-known varieties were grafted and planted on the Department grounds with a view to duplicating the previous experiment, using varieties of known habit of growth and other characteristics.

An experiment in the storage of chestnuts at low temperatures during the winter for the purpose of retaining their edible properties unimpaired demonstrated that nuts held in such storage at a temperature of 32° to 34° F. from November 9, 1895, till May 4, 1896, had deteriorated somewhat in dessert quality, while nuts from the same lot stored for the same time at 12° to 14° F. were almost equal to fresh nuts in texture and flavor.

An experiment in the germination of these nuts conducted under unfavorable conditions demonstrated the superiority of the nuts stored at the lower temperature, and indicates that chestnuts for planting in nurseries can be cheaply and successfully held until planting time in this manner.

It is intended to pursue this line of investigation further during the present season, and to include some other nuts, as well as scions and trees, with a view to determine the possibilities of the utilization of coldstorage establishments by nurserymen and other propagators of fruit and nut trees.

#### EXPENDITURES.

*Summary of expenditures, fiscal year 1895-96.*

##### STATUTORY ROLL.

Appropriation.....		\$6,500.00
Expenditures:		
Pomologist.....	\$2,500.00	
Assistant pomologist.....	1,800.00	
Pomological clerk, stenographer, and typewriter.....	1,200.00	
Pomological clerk.....	1,000.00	
Total.....		6,500.00

##### POMOLOGICAL INFORMATION.

Appropriation for pomological information.....		6,000.00
Salaries of employees in Washington.....	\$3,930.96	
Salary of special agent.....	824.20	
Materials, transportation, etc.....	237.60	
Balance unexpended.....	1,007.24	
Total.....		6,000.00

**PLANS FOR ENSUING YEAR.**

In addition to the work already being done in the division, arrangements should be made for a thorough study of some large orchards during the blossoming period, in which may be found the greatest number of varieties cultivated for home use, domestic markets, and for export purposes.

From the numerous reports received from all sections of the country of nonproductive orchards it seems probable there must exist a general weakness of certain varieties in the process of pollination. An accurate history of the period of bloom of each variety, i. e., date of appearance of first bloom, of full bloom and number of days of the same, of late bloom and continuance of the same, and a study of the form of blossom would constitute the only reliable data for deciding many of the difficult problems of nonproductiveness that have been propounded from time to time.

A collection of blossoms of each variety could be made at the same time. These would often prove valuable in the identification of fruits which very closely resemble each other, as color and size of petals, together with form and position of blossom clusters, show great and wide modifications in different varieties and seem to be fixed types of those bearing such close resemblances. Photographs of a typical tree of each variety thus studied could be taken at the same time, the only additional expense being the material necessary for that purpose. When sufficient material has thus been authentically obtained a bulletin fully illustrating the typical forms of bloom, foliage, growth of wood, and shape of tree of the most valuable varieties should be published as a means of thorough identification.

This line of work is worthy of careful and extended observation, as it has not been fully considered in any of the various works upon pomological literature.

What has been outlined as a course of complete study of the apple should be extended to the other commercial fruits as opportunity and means are provided.

**VARIETAL HERBARIUM.**

A considerable collection of the seeds of many species of fruits, including edible nuts, has already been obtained, to which it is proposed to add those of every distinct variety of any species of fruit that may be sent to the division either for examination or identification. Apart from the importance of having the means of comparing the ratio of available fruit and seed, many varieties are recognizable by the shape, size, and markings of the seed. This is more especially true of the grape than of any other species of fruit. To this collection should be added foliage, young wood, fruiting wood, and blossoms, as it may be possible to obtain them from time to time from well-authenticated trees, vines, etc., of recognized varieties.

With the additional rooms assigned to this division it will be possible to arrange an exhibit that will not only prove valuable in the identification of many varieties, but that should prove equally interesting to investigators in the line of morphology. A very small sum will be needed for glass doors to be adjusted to the shelving already arranged in convenient and well-lighted rooms adjoining the rooms at present assigned to this division upon the second floor of the Agricultural Museum building.

## ILLUSTRATION OF FORMS OF GROWTH.

An instructive element of horticultural knowledge should be developed by means of the forms of growth that different varieties maintain.

A knowledge of this type, whether erect, spreading, drooping, etc., often materially assists in the matter of identification. Any variation of type resulting from latitude, altitude, soil, or culture could be accurately shown by means of a photograph.

It is important to establish a complete collection of varietal forms by this means as soon as possible.

To the nucleus already established additions will be made from time to time having in view accuracy of detail, so that the inquiring pomologist may be able to find presented to his view much of value in the selection of varieties whose forms, other things being equal, are best adapted to his locality.

In connection with these views of varietal forms there will be an exhibit of blossoms, leaves, and wood of different years' growth.

The size and color of the petals, the size, shape, and serration of the leaf, taken in connection with the form of the tree and the accurate model of the fruit already prepared, will go far toward advancing the work of this division from the realm of empiricism into that of science.

## JORDAN ALMOND.

Of late years there has been an increased interest manifested in almond culture. This is manifest not only in the great number of trees planted, but also in the attempt to produce new varieties from seed that may meet the demands of the market. I therefore suggest that an effort be made to introduce the "Jordan" (jardin) almond.

This variety brings the highest price in our market, often selling from 8 to 10 cents per pound higher than any other.

It is imported only as kernels, in which condition the seeds are of no use to the horticulturist for the purpose of propagation, and the variations of seedlings are so great that they would be unreliable even if the kernels retained their germinating powers.

As nearly the entire importation is from Malaga, Spain, it should be possible, by the cooperation of our minister to that country, to obtain a sufficient number of trees for experimental purposes, and to test the adaptability of the variety to our almond-producing sections.

## MAPS OF FRUIT DISTRICTS.

The need for more definite information in regard to the locations and areas of the districts in the United States in which the more important fruits and nuts are grown in commercial quantities or for home use becomes more apparent yearly.

The lack of reliable statistical information, both with regard to number of trees, plants, or vines, acreage, and quantity and value of product, renders the accurate determination of these districts impossible at the present time. In view of the fact that statistical information is not likely to be obtainable for at least five years to come, and then only in case the census of 1900 shall arrange for an investigation on this subject, it seems wise to undertake a preliminary survey of the field which shall outline the districts as definitely as this can be done with present information and such as can be secured by correspondence. It is believed that data now on file in this division can be

utilized in constructing for publication a series of maps which will illustrate with sufficient accuracy to be useful the present distribution of our more important cultivated fruits. Such a series, accompanied by explanatory text, would be of great value to the fruit-purchasing, as well as to the fruit-producing portion of our population. It is hoped that a sufficient increase in the clerical force of the division will be made to provide for the preparation of such a series of maps for publication.

#### COOPERATION WITH STATE EXPERIMENT STATIONS.

Much information of a valuable character could be obtained by the cooperation of the several experiment stations and the Division of Pomology. As these stations are intimately associated with the Department of Agriculture in their general work, an extension of their scope of operation so as to cover such observations as would prove useful to this division could not help but be of great advantage to fruit growers in general. Individual growers as a general thing are not so situated as to make careful and comprehensive observations. Many are limited in the number of varieties and lack the means of making and carefully recording the results of their observations.

Experiment stations have, or will have in the near future, the principal varieties grown in their respective States. They are all possessed of the means of accurately estimating the elevation of their orchards, which is often a guess with the individual grower, and therefore an unreliable factor upon which to base conclusions.

The stations keep a careful record of the temperature and humidity of the atmosphere, and are admirably qualified to record the changes that occur during the critical period of blossoming. The various phenomena of growth resulting from an excess or lack of rain or snow no doubt have been carefully observed at many stations. The form, size, time, and duration of blossoming; the time of ripening and length of season of each variety; the keeping qualities of the several varieties; habit of fruitage, whether an annual or alternate year variety; the general habit of growth, which could be shown by a photograph of a typical tree of each variety, mutually observed and noted, would no doubt prove interesting and instructive to the several stations and would furnish data hitherto unobtainable by this division. These subjects, with others equally important that could be named, would prove of inestimable value to the stations and the division in properly presenting the art and science of fruit growing to the country at large.

Such mutual observations multiply the value of each individual record, and through this division a ready interchange of the conclusions reached could be had with the several stations.

In return for this, the several stations could be provided with models of typical specimens of their fruits prepared under the supervision of the Department of Agriculture, the stations paying only such price as would cover the expense of material and cost of making. Should the law regulating the expenditure of the experiment-station fund not permit this purchase, it seems to me it would be wise legislation to so amend it as to authorize such procedure.

These models, in order to be valuable in identification, etc., must in the first place be accurate, and secondarily, must have been approved by some agency of the Department to make them authoritative.

This is in keeping with the care exercised by the General Government in the accuracy of weights and measures by providing each State with a complete set of standards.

#### **RECOMMENDATIONS.**

For the fiscal year 1897-98 it is strongly urged that provision be made on the statutory roll of this division for an additional pomological clerk at a salary of \$1,200 per annum, and that the appropriation for pomological information be increased from \$6,000 to \$8,000, an increase of \$2,000.

These increases are needed to insure the completion of important investigations already begun, the completion of which is delayed by an insufficient office force and the necessity for exercising too close an economy in field investigations.





